Book review

Soil and rock description in engineering practice.
D. Norbury. Caithness: Whittles, 2010. 302 pp. ISBN 978-1904445-65-4. £80.00

The description of soil and rock, whether in situ or of samples from a borehole, is a key part of every site investigation. Systematic and accurate descriptions will convey a significant amount of information to the geotechnical designer and contractor about the expected engineering behaviour of the ground. This book is therefore very welcome, as it is one of only a few to focus on this vital area of geotechnical practice.

Whereas in the UK the engineering description of soils has developed around conveying expected mechanical and physical behaviour, the description of rocks, and in particular the naming of rocks, has its origins in geology. Codification has attempted to unify the description of soil and rock in the UK and Europe, and David Norbury has been a major driving force behind this. With over 30 years of first-hand experience as an engineering geologist he is very well placed to provide guidance for those in the field carrying out engineering descriptions of soil and rock samples and exposures.

The book is divided into 17 chapters and guides the reader through the subject, making reference to the latest codes and standards (EN ISO 14688 and 14689; BS 5930:1999 Amendment 1 (2007)). A historical review of the codification of soil and rock description is provided in Chapter 2. Dealing with UK and European practice, it will be useful when interpreting older records such as borehole logs making use of terminology from older codes and standards.

David Norbury has for many years promoted the use of the Standard Word Order for description. The book follows this in the description of material features (i.e. natural ground without discontinuities), with chapters devoted to the description of relative density and strength, structure, fabric and texture, colour and secondary (and tertiary) constituents. These provide well-illustrated (in colour) and easy-to-understand guidance on some areas that present difficulty, particularly to the inexperienced engineer, such as the description of mixed colours, and how to estimate and describe the

proportions of grain sizes in granular mixtures. The final part of the description of material features deals with the application of a stratigraphic name. This chapter is very short. Although it makes reference to CIRIA SP 149 (Powell, 1998), which gives guidance on old and new formation names in the UK, more examples would have been helpful.

The description of mass features is covered in three chapters on weathering, discontinuity logging and fracture state logging. In comparison with coverage of material features, the treatment of mass features is relatively brief, and this is particularly the case with the description of discontinuities. Although there is some guidance in the final chapter of the book, relating to the description process for field exposures, this is rather limited. More guidance on the methods of acquiring discontinuity data in the field, as well as methods of presenting these data, would have been welcome.

Two chapters deal with special types of soil. These are low-density soils (e.g. topsoil, peat and loess), and made ground. These are followed by a short chapter on classification schemes, which places more emphasis on soil classification than on rock mass classification. The final chapters cover the description processes in relation to boreholes and field exposures. Guidance is given on the tools required, and on photography. The material could have been improved by including examples of borehole and exposure logs, to help consolidate the information given in the text.

In general the book is very well illustrated, with many diagrams and photographs shown in colour. Throughout the book, tips and examples are provided in coloured boxes. These are very useful, as they make key information easy to find. The use of colour is particularly important in a book on this subject, aimed at practitioners. The author and publisher are to be congratulated on the high quality of its presentation.

REFERENCE

Powell, J. H. (1998). *A guide to British stratigraphical nomenclature*, CIRIA SP149. London: Construction Industry Research and Information Association.

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